

In the Claims

1. (Original) A process for producing a catalyst for olefin cracking, the processing comprising the steps of providing an MFI-type crystalline silicate catalyst, heating the catalyst in steam to remove aluminum from the crystalline silicate framework and extracting aluminum from the catalyst by contacting the catalyst with a complexing agent for aluminum to remove from pores of the framework aluminum deposited therein during the steaming step thereby to increase the silicon/aluminum atomic ratio of the catalyst; and calcining the catalyst at elevated temperature.

2. (Original) A process according to claim 1, wherein the catalyst is selected from the group consisting of the ZSM-5 and silicalite types.

3. (Original) A process according to claim 2, wherein the catalyst is of the ZSM-5 type and prior to the extracting step the catalyst has a silicon/aluminum atomic ratio of less than about 80.

4. (Original) A process according to claim 2, wherein the catalyst is of the silicalite type and prior to the extracting step the catalyst has a silicon/aluminum atomic ratio of around 120.

5. (Original) A process according to claim 1, wherein the heating in steam is carried out at a temperature of from 425 to 870° C at a water partial pressure of from 13 to 200 kPa.

6. (Original) A process according to claim 5, wherein the heating in steam is carried out for a period of from 1 to 200 hours.

7. (Original) A process according to claim 1, wherein the complexing agent is selected from the group consisting of an organic acid selected from citric acid, formic acid, oxalic acid, tartaric acid, malonic acid, succinic acid, glutaric acid, adipic acid, maleic acid, phthalic acid, isophthalic acid, fumaric acid, nitrilotriacetic acid, hydroxyethylenediaminetriacetic acid, ethylenediaminetetracetic acid, trichloroacetic acid, trifluoroacetic acid, a salt thereof and a mixture of at least two of such acids or salts.

8. (Original) A process according to claim 1, wherein following the extracting step the catalyst has a silicon/aluminum atomic ratio of at least about 180.

Claims 9-17 (Cancelled)

18. (New) The process of claim 1 further comprising formulating said MFI type crystalline silicate catalyst with a binder comprising silica to produce catalyst particles in a formulation of said MFI type crystalline silicate and silica binder.

19. (New) The process of claim 18 wherein said MFI crystalline silicate catalyst is formulated with said silica binder to produce said catalyst particles prior to heating said catalyst in steam to remove aluminum from the crystalline silicate catalyst framework and extracting aluminum from the pores of the catalyst framework.

20. (New) The process of claim 19 wherein said silica is employed in an amount to provide catalyst particles of said silica binder and said MFI type crystalline silicate catalyst containing at least 20% silica.

21. (New) The process of claim 20 wherein said silica binder is present in an amount of about 50 wt. %.

22. (New) The process of claim 18 wherein said MFI crystalline silicate catalyst is formulated with said silica binder subsequent to the steaming and dealumination of said framework aluminum wherein said binder is employed in an amount to provide said silica in an amount of no more than 20% of the silica and MFI crystalline silicate catalyst particles.

23. (New) A process for producing an olefin cracking catalyst comprising:
- (a) providing an MFI type crystalline silicate catalyst containing aluminum and silicon in the catalyst framework to provide an initial silicon/aluminum atomic ratio;
 - (b) formulating said crystalline silicate catalyst with a silica binder to produce catalyst particles containing said MFI crystalline silicate and silica binder.
 - (c) subsequent to the formation of said MFI crystalline silicate-binder catalyst particles, subjecting said catalyst particles to steaming to remove aluminum from the framework of the crystalline silicate catalyst;
 - (d) thereafter dealuminating said catalyst by treating said catalyst particles with a complexing agent for aluminum to remove aluminum by extraction from the pores of said catalyst during the steaming step and provide a silicon/aluminum atomic ratio greater than said initial silicon/aluminum atomic ratio; and
 - (e) calcining said catalyst particles at an elevated temperature.

24. (New) The process of claim 23 wherein said MFI crystalline silicate catalyst at the conclusion of the extraction of aluminum had a silicon/aluminum atomic ratio of at least 180.

25. (New) The process of claim 23 wherein said MFI crystalline silicate catalyst at the conclusion of the extraction of aluminum has a silicon/aluminum atomic ratio of at least 300.

26. (New) The process of claim 23 wherein said MFI crystalline silicate catalyst is a catalyst of the ZSM-5 type which prior to the steaming and extracting procedure, had a silicon/aluminum atomic ratio of less than 80.

27. (New) The process of claim 23 wherein said MFI type crystalline silicate is a catalyst of the silicalite type, which prior to the steaming and extraction had a silicon/aluminum atomic ratio of at least 120.

28. (New) The process of claim 27 wherein said MFI type crystalline silicate at the conclusion of the extraction of aluminum has monoclinic symmetry.